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VIRGINIA:

IN THE CIRCUIT COURT FOR THE CITY OF RICHMOND

JOHN MARSHALL COURTS BUILDING

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PHILIP MORRIS COMPANIES, INC., et al.,

Plaintiffs,

-against-

At Law No. 760CL94X 00816-00

AMERICAN BROADCASTING COMPANIES, INC., et al.,

Defendants.

-----------------------------------x

August 10, 1995
9:06 a.m.

HIGHLY CONFIDENTIAL - TRADE SECRET

Continued Videotaped Deposition of KENNETH S. HOUGHTON, taken by Defendants, pursuant to Subpoena, at the offices of McGuire Woods Battle & Boothe, Esqs., 901 East Carey Street, Richmond, Virginia before Lee A. Bursten, a Registered Professional Reporter and Notary Public within and for the Commonwealth of Virginia.

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Source: https://www.industrydocuments.ucsf.edu/docs/zthl0001

APPEARANCES:

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BY: JOHN PAYTON, ESQ.,
ANTHONY G. BROWN, ESQ.,
of Counsel.

ALSO PRESENT:

SHELLEY SANDERS, Videographer

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ERRATA SHEET

Corrections or changes to the deposition testimony of:

Kenneth S. Houghton - Volume 3

Page	Line	Correction
329	13	Insert "at" between "R&D" and "General"
331	5	Change "despite" to "in"
331	6	Delete "stem" and replace with "stemmed"
331	6	Insert "non" after "but"
331	7	Delete "stem" and replaced with "stemmed"
332	23	Insert "to" between "issued," and "Cliff"
335	14	Insert "No," before "it"
338	18	Insert MR. MURPHY: "No, I don't want the record to be unclear." MR. PAYTON: "The record has this in it; it's an exhibit."
338	22	Insert "all" between "in" and "exhibits"
338	23	Insert MR. MURPHY: "John, don't interrupt me while I'm stating an objection. MR. PAYTON: "This is improper."
339	20	Insert "I am" between "is" and "preventing"
340	12	Insert "It's a single sentence now" between "MR. PAYTON" and "If"
351	19	Insert "the" after "minimize"
352	19	Insert "and" between "today," and "increase"
367	3	Delete "outlined" and replace with "eliminated"
384	14	Add "of the inquiry" after "headings"
385	5	Change "Is" to "Was"
396	15	Insert "the" between "been" and "original"
403	4	Delete "in" and replace with "and" between "Richmond" and "1994"
403	22	Change "4" to "24"
403	24	Delete "Denoble" and replace with "DeNoble"
404	11	Delete "Denoble" and replace with "DeNoble"
405	20	Delete "Denoble" and replace with "DeNoble"

Kenneth S. Houghton

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ERRATA SHEET

Corrections or changes to the deposition testimony of:

Kenneth S. Houghton - Volume 3

Page	Line	Correction
407	22	Delete "plant" and replace with "plants"
410	14	Delete "a" and replace with "any"
413	12	Delete "may" and replace with "might"
413	20	Delete "A." and replace with "Q."
413	23	Insert "it has" between "heading," and "on"
414	4	Change "smoke" to "smoking"
414	25	Delete "document" and replace with "patent"
417	24	Insert "have" between "recently" and "changed"
422	11	Delete "about the" and replace with "the BL"
423	12	Delete "form" and replace with "kind"
431	19	Insert "of" between "aware" and "that"
432	6	Insert "by William L. Dunn" between "23" and "It"
436	24	Insert "And," before "Who"
437	11	Delete "Let me" and replace with "Hang on until I"
442	23	Delete "it"
445	22	Delete "opinion" and replace with "been"
446	10	Delete "list" and replace with "lists"
471	16	Insert "the" between "of" and "inquiries"

Kenneth S. Houghton

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09:05:40 THE VIDEO OPERATOR: This is the
09:05:44 video operator speaking, Shelley Sanders of
09:05:50 Action Legal Video, 132 Nassau Street, New York,
09:05:54 New York. Today is August 10th, 1995. This is
09:06:02 videotape number 6. The time on the screen is
09:06:06 9:06:05.
09:06:06 This is the continuation of the
09:06:14 deposition of Dr. Houghton. You're on the
09:06:14 record.

K E N N E T H S. H O U G H T O N,
resumed, having been previously duly sworn, was
examined and testified further as follows:

CONTINUED EXAMINATION

09:06:14 BY MR. PAYTON:
09:06:16 Q. Good morning, Dr. Houghton.
09:06:18 A. Good morning, Mr. Payton.
09:06:22 Q. Dr. Houghton, I want to ask you just
09:06:30 a few general questions about the ART process.
09:06:38 First of all, could you just briefly describe
09:06:42 your initial involvement in the ART process.
09:06:44 MR. MURPHY: Objection to form. Lack
09:06:46 of foundation. You can answer.
09:06:56 A. I think it was late in 1985, and
7:02 Philip Morris merged with General Foods at that

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time, and General Foods had a coffee operation in Europe called Kafe-Hag, and at Kafe-Hag they were using a process known as supercritical carbon dioxide extraction for producing decaffeinated coffee.

And as a result of the merger between the two companies, the possibility of learning from General Foods how to use this technology provided us an opportunity to take a look at that technology as a means of significantly reducing the amount of nicotine in tobacco.

And if I recall correctly, there were some general patents that were issued on supercritical extraction technology some years before by a research organization in Germany, and I don't recall exactly who it was that had the original patents, but they also included some preliminary work that had been done on supercritical extraction of tobacco.

So based upon those two things, we had an opportunity to assess this technology as a potential for providing us an opportunity to make a nicotine free cigarette.

Q. Were you involved in this when you

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were still the manager of R&D for Philip Morris International?

MR. MURPHY: Objection to form. Misstates his prior testimony. You can answer.

Q. Let me ask another question. In 1985, you were the manager of R&D at Philip Morris International?

A. The title was director of R&D for Philip Morris International.

Q. Director of R&D. And when you were in that position, were you involved in looking into this technology at that time, 1985?

A. I think the timing was that the merger between the two companies occurred in December 1995, and I was in a period of transition from Europe to the United States.

Q. This is 1985.

A. Excuse me, 1985. So it was basically at the time I was moving from the one position to the other.

Q. This is one of the first things you became involved in when you came back to be the head of R&D at Philip Morris U.S.A.?

MR. MURPHY: Objection to form. You

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can answer.

A. Well, I think it was the first major new technology that we became involved with at that time.

Q. Did you play an active role in the ART program?

MR. MURPHY: Objection to form.

A. Well, you know, as vice president of R&D, I had the responsibility to ensure that we had the resources that were available to assess this technology. I was responsible for providing interface with the head of R&D At General Foods at the time.

Relative to budgeting, in modifying budgets, which happened on revisions, say, second revised budget would come up in mid-year, approximately mid-year, at that time I would have been responsible for ensuring that the costs and resources associated with pursuing this technology were available and were budgeted for.

And as such, I did follow the development activities. I didn't run the tests in the laboratory, but I was following the technology and what progress was being made.

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Q. The ART cigarette, it was called Next; is that correct?

A. That was one of the brand names for the product.

Q. Was there a generic name or were they just called ART cigarettes?

A. They were referred to as ART cigarettes or De-Nic cigarettes. We test marketed different models under various potential trademarks such as Merit, Next -- Merit De-Nic, Next, and I think Benson & Hedges De-Nic.

Q. Did any of the ART models use expanded tobacco?

MR. MURPHY: Objection to form.

A. I think in the lower delivery cigarettes there was expanded denicotinized tobacco in the blends, yes.

Q. And did any of the ART models use RL?

MR. MURPHY: Objection to form.

A. I do not believe that there was RL or BL or stem products in the blends. I think they were bright tobaccos, burley tobaccos, and different Orientals, as I recall.

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09:13:30 Q. These were all lamina cigarettes?
09:13:38 A. What I recall is that they were
09:13:46 bright, burley, and Oriental, and Oriental is --
09:13:48 does have stem in it despite the fact that it's
09:13:54 not stem. So I wouldn't say all lamina, but
09:13:58 either stem bright lamina, burley lamina, and
09:14:00 Oriental leaf.
09:15:16 Q. Dr. Houghton, you've just been handed
09:15:20 what's been marked Houghton Exhibit 17.

(Houghton Exhibit 17 for identification, 1992 Philip Morris U.S.A. R&D product development department operational plans.)

09:15:26 Q. A document entitled "1992 Philip
09:15:30 Morris U.S.A. R&D product development department
09:15:34 operational plans." It has production number PA
09:15:44 732002 through PA 732072, or 2021323470 through
09:15:48 3540.
09:15:50 Have you seen this document before?
09:15:56 A. I may have. I don't recall
09:15:56 specifically.
09:16:02 Q. Is there an annual product
09:16:06 development department operational plan at R&D?
6:08 MR. MURPHY: Objection to form.

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A. I think generally there would be an operational plan for that department, yes. I don't know how far back they started.

Q. And you would receive copies of the operational plans?

MR. MURPHY: Objection. You can answer.

A. I don't know if I would receive a copy per se or not. It would be the basis for the budget for their department. But whether I would get a copy, I don't think it would have been necessary.

Q. Dr. Houghton, do you recall receiving any operational plans for the product development department?

MR. MURPHY: In any year?

MR. PAYTON: In any year.

A. I may have. I don't recall going through and reading them in detail.

Q. Do you see this copy was issued to C. Lilly, Cliff Lilly? Do you see that?

A. Yes, it says "Copy number 18, issued, To Cliff Lilly." *

Q. Cliff Lilly was not in the product

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development department in 1992, was he?

A. No, he wasn't.

Q. Dr. Houghton, are you familiar with a program entitled "Low tar/high flavor"?

A. Yes.

Q. What is it?

MR. MURPHY: Objection to form.

A. It's a program that is oriented towards developing knowledge and technology in areas such as flavoring, blending, filtration, cigarette constructions, to allow us to make the best tasting low delivery cigarettes for the U.S. marketplace.

Q. And when you used the term "low delivery" just then, what did you mean?

A. Well, low delivery cigarette for me is below full flavor. Full flavor is generally regarded as 14 milligram tar and higher. Light delivery is 14 milligram and less. Ultralights are generally considered to be 6 milligram and less.

So to be -- development of low delivery would be the development of cigarettes below 14 milligrams tar.

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Q. And when it says "low tar/high flavor," the "high flavor," does that refer to something other than the tar?

MR. MURPHY: Objection. You said in your question, John, "when it says 'low tar/high flavor.'" Are you referring to a particular section of this document --

MR. PAYTON: No, no. I'm simply referring to --

MR. MURPHY: -- and its use of that term?

MR. PAYTON: -- the program or project that was designated "Low tar/high flavor."

MR. MURPHY: The project that he described in his prior answer?

MR. PAYTON: Yes.

MR. MURPHY: Because there are references in this document to such a project.

MR. PAYTON: I understand that.

MR. MURPHY: Okay.

A. For me, "low tar/high flavor" means that we're able to produce products that even though they test at 1 milligram or 2 milligram or

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3 milligram, when a consumer evaluates them, they evaluate them as having the kind of taste and flavor of cigarettes that normally would deliver more tar.

So for me it would be 3 milligram cigarette with as much taste from a consumer point of view as maybe a 5 milligram cigarette. So it would have low tar but it would have the taste of a higher tar cigarette.

Q. "Low tar/high flavor" doesn't refer to the nicotine delivery of the cigarettes?

MR. MURPHY: Objection to form.

A. NO, It refers to lower tar, but having * the taste of higher tar cigarettes.

Q. Could you turn to a page in this document that -- I'm going to give you the production number, because the pages aren't numbered consecutively in the document. The production number is PA 732039. It's about a third of the way in. It says at the top, "Low tar/high flavor."

Do you see it at the top, "Low tar, high flavor"?

A. Mm-hmm.

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Q. If you want to turn back two pages, you can see what section we're in. Just go back two pages from that. You'll see that we're in a section that has as what must be a tab on the side, "Product technology," do you see that there?

A. I see the word "Product technology."

Q. Then you turn the page, it says "Product development technology," and it lists seven items. The first "Low tar/high flavor." The second is "Project ART." Do you see that?

A. Yes.

Q. And then if you turn the page, we're to the first one, which is "Low tar/high flavor." And the "Low tar/high flavor" is a page and a half.

A. Mm-hmm. Okay.

Q. Have you seen this page and a half before, "Low tar/high flavor"?

A. I may have. It looks to me like what this document is is a combination of writeups of different programs. But the way it's put together, looks like it might be a draft. I may have seen this page and a half. I don't -- I

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don't really recall having read it specifically.

Can I read it?

Q. Sure.

A. Okay.

Q. Are you familiar with the term "sensorial experience"? It's used in the first sentence.

A. I have heard the term "sensorial" as a term that would cover all of the experiences related to cigarette taste, feeling factors in the mouth and in the throat, as well as the odor, the feel of the cigarette. It's for me a term that encompasses all of the senses that are related to smoking a cigarette.

Q. There's also a reference in this section to innovative use of expanded tobacco and blending. That's in the second -- the Roman numeral II, the second paragraph. Do you see that? "Innovative use of expanded tobacco and blending."

Do you know what that's referring to?

A. Specifically, I don't know exactly what's being talked about, what he means by those

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words.

Q. Do you have a general idea what the innovative use of expanded tobacco and blending was?

MR. MURPHY: Objection to form.

A. No. Let me read through it.

MR. MURPHY: I think it would be helpful, John, if you could just read into the record the full sentence rather than taking just a snippet of it.

MR. PAYTON: Well, Dr. Houghton, just read the whole thing.

MR. MURPHY: Well, I'll read into the record the full sentence.

MR. PAYTON: Don't do this. This is taking too much time. He has read the sentence.

MR. MURPHY: The fair comment rule has not been suspended in Virginia, John.

MR. PAYTON: There is no fair comment rule. This deposition will go on forever if you are going to read in exhibits.

MR. MURPHY: You are not going to interrupt me when I'm stating an objection.

MR. PAYTON: What is your objection?

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09:28:00 MR. MURPHY: My objection is that you
09:28:04 have taken the phrase "expanded tobacco and
09:28:10 blending" and you have focused solely on that
09:28:10 phrase. I would like to have the full context of
09:28:12 that phrase in the record so there is no
09:28:14 ambiguity to anyone who may be looking at this
09:28:14 transcript.
09:28:14 MR. PAYTON: You've made your
09:28:16 objection.
09:28:16 Q. Do you understand the phrase,
09:28:18 Dr. Houghton?
8:18 MR. MURPHY: No, I'm going to read
09:28:22 that sentence into this record. It says --
09:28:22 MR. PAYTON: David, stop for just a
09:28:26 second. There is no rule that says you can read
09:28:28 into the record exhibits at a deposition. There
09:28:30 is no such rule anywhere.
09:28:32 MR. MURPHY: John, that is not what I
09:28:34 am doing. What I am doing is I AM preventing you from
09:28:38 putting before this witness a question which has
09:28:42 language cropped out of it so that the record
09:28:44 appears to be something that it may not be.
09:28:46 MR. PAYTON: The record has the
8:46 exhibit.

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MR. MURPHY: I am not going to let that occur. I am going to read into the record this sentence. It is a very brief sentence.

MR. PAYTON: I'm going to say this on the record, then. If you persist in this, we'll just keep the deposition going, and we're going to go to the Court and argue about whether or not this counts as a day or half a day or nothing.

MR. MURPHY: John, this is a single sentence.

MR. PAYTON: If you continue with this -- he has read the entire sentence. He's read this entire section. This entire document is in the record as an exhibit. I have asked him if he understands the meaning of a phrase.

That's what I want to ask. And if you want to read in the whole thing, it's going to be your time.

MR. MURPHY: I will object to the form of the question. I will state that but for the fact that I do not wish to make an issue of the time, I would read this entire sentence into the record. I think the document speaks for itself, and you can pose your question.

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I won't detain you by reading the sentence, but I do believe, John, that particularly when you are dealing with a very short section of prose like this, that it is fully appropriate to read the full sentence into the record so that the colloquy on the transcript is as clear as it might be if one resorted to actually consulting the exhibit and reading the full context of the sentence.

Q. Dr. Houghton, do you have a general idea what "the innovative use of expanded tobacco and blending" is referring to?

A. Well, in reading the rest of the sentence here, it appears that the author is referring to a product that we had developed apparently at that time called Merit Ultima, which was an 1 milligram cigarette, and in explaining -- basically it explains in here how we developed that cigarette. One of the ways was what's referred to as the innovative use of expanded tobacco and blending.

And as I recall, the Merit Ultima had -- as part of the development, it had the development of a blend of tobaccos that was used

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in the expansion process for that cigarette. And the other thing that I recall that was different about that versus other ultralight cigarettes we were making at the time was the fact that we used approximately I think 50 percent expanded tobacco in that cigarette.

And that was one of the areas that helped us to produce the Merit Ultima, which tested very well against other 1 milligram cigarettes. But there were other developments in that cigarette that made it different than what we had been doing previously.

Q. There is also a reference to creative flavor development. Do you know what that's referring to?

MR. MURPHY: Same objection. If you had read the full sentence into the record, the context of your question would be more clear. If you understand the question, Dr. Houghton, you can answer it.

A. Specifically I don't recall what the flavor system was for that cigarette. But if it were different from a flavor system we were using previously, then I could see somebody calling it

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creative.

Q. Do you recall if Philip Morris considered the nicotine products marketed by pharmaceutical companies to be competitors of low tar/high flavor cigarettes?

MR. MURPHY: Objection to form.

A. When we met a few weeks ago, there was one planning document that we looked at which -- can I pull it out and take a look at it?

Q. You can pull it out, but I'm also referring to the third paragraph in this document, which I believe has similar language. But you can certainly pull that out.

A. Yes. And --

MR. MURPHY: Was that the planning document for the same year?

THE WITNESS: I think it was the planning document from 1992, where there was an appendix in there that basically addressed the issue at that time. I don't know, it's one of those 500-page planning --

MR. MURPHY: I think it was Exhibit 16. Just a moment, Dr. Houghton. I'm sorry.

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It's big.

THE WITNESS: Appendix --

MR. MURPHY: J.

THE WITNESS: J, yes. I just want to see if that's the same timing, because I think there's a good possibility that maybe who wrote -- whoever was the -- put this draft together or what appears to be...

MR. PAYTON: Did you find appendix J? This is in Houghton Exhibit 16.

MR. MURPHY: Yes. Appendix J, Houghton 16.

Q. Appendix J is the "Smoking cessation nicotine delivery devices," and it's three and a half pages.

A. It would appear that what you're asking about today, we see competition for our consumers from outside our industry, probably based upon this same appendix J, which as I recall, there was a reference in here.

"What is the prevailing opinion of health authorities regarding nicotine delivery devices. A quote from a recent editorial in the influential British medical journal Lancet

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09:36:12 suggests that this opinion might well not be
09:36:14 negative."
09:36:20 And then it goes on, "With further
09:36:24 refinement, some of these nicotine replacement
09:36:28 products may also have the potential for long
09:36:32 term use and if permitted might eventually
09:36:34 replace tobacco on the open market."
09:36:44 And this appendix was from a
09:36:48 strategic plan, and then the operating plan was
09:36:50 based on what's in the strategic plan. It's my
09:36:52 understanding that whoever wrote this was
6:58 probably part of the group that went through and
09:37:02 reviewed that kind of information from Lancet.
09:37:04 I believe at the time the patches
09:37:14 were just coming out, so for somebody to refer to
09:37:18 nicotine gum or nicotine patches and inhalation
09:37:24 devices as a potential competitor for our
09:37:28 products, the competing products are, for
09:37:30 example, nicotine chewing gum, nicotine patches
09:37:32 and inhaler.
09:37:34 So I don't think it would be unusual
09:37:38 to have somebody who had read that have that in
09:37:42 mind as part of the explanatory introduction,
7:44 stick it in here.

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Q. Do you know if the competing products that are referenced in this third paragraph, nicotine chewing gum, nicotine patches, and inhalers, were viewed as competitors of low tar/high flavor cigarettes, specifically?

MR. MURPHY: Objection to form. But you can answer.

A. They may -- somebody may have thought at the time that lower tar, lower delivery products were being smoked by consumers who might be interested in smoking cessation, and maybe that interest would appear at that time to have been greater than maybe for a full flavor.

So within that, I don't know specifically what everybody thought at the time, but it would be reasonable to think that people who were interested in smoking cessation would be interested in patches.

Q. Dr. Houghton, were you present at meetings where there were discussions of nicotine chewing gum, nicotine patches and nicotine inhalers being competitors of low tar/high flavor cigarettes?

A. I don't specifically remember being

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in a meeting that was framed that way. I have been in meetings where the description of these kinds of products, what kind of work was being done, what was being published, what patents were being issued, et cetera, were reviewed.

I do recall being at meetings where that subject was reviewed. I don't know if it was reviewed specifically -- I don't recall it being reviewed specifically in relationship to low delivery products.

But I do recall there being concern or conversation at the time that these kinds of products, as it says in Lancet, could possibly be recommended by health officials for a purpose other than smoking cessation, and as such would be theoretically a competitor for all of our consumers, regardless of what they -- what kind of product they smoked at the time.

Q. Now, Dr. Houghton, are you familiar with the concept that nicotine follows tar?

MR. MURPHY: Objection to form.

A. I am aware that over the last 30 or 40 years, that the tar delivery, average tar delivery in cigarettes has gone down, not just

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here but in other countries, and along with that has gone down the average nicotine delivery of cigarettes.

Q. Is it your understanding that there is a direct relationship between tar delivery and nicotine delivery?

MR. MURPHY: Objection to form.

A. What do you mean by "direct"? Is this a technical term that's talking about a statistical relationship?

Q. Have you heard the phrase "nicotine follows tar"?

A. Yes.

Q. Do you understand what it means?

A. Yes. As tar goes down, nicotine goes down.

Q. As tar goes up, nicotine goes up?

A. I don't know. I haven't thought about it that way. But let me think about it.

I would assume, with everything else being constant, if you raise the tar delivery of a cigarette, the nicotine delivery would go up, yes.

Q. And do you understand why there is

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such a relationship between tar delivery and nicotine delivery?

MR. MURPHY: Objection to form.

A. My understanding is that the tar is that portion of the smoke that's captured on a Cambridge pad during the FTC testing procedure. And that particle that has tar, the majority of the chemicals in there also includes nicotine.

Now, as a result of that, as the tar has gone down, if you capture more of the particles, you're going to capture more of the nicotine on the pad, so less will pass through.

Q. Is it your understanding that the ratio of tar to nicotine in cigarettes is constant?

MR. MURPHY: Objection to form.

Q. Do you understand my question?

A. In general, or specifically? Ask the question once again, would you?

Q. Is it your understanding that the ratio of tar to nicotine in cigarettes is constant?

A. For a specific blend or cigarette, in general you can control the tar to nicotine

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ratio, and that will stay fairly constant. But the tar to nicotine ratio in different types of cigarettes could be different.

For instance, a cigarette that was made out of 100 percent Oriental tobaccos, as is sold in Turkey, or perhaps a cigarette made out of 100 percent flue cured or bright tobaccos, as you could find in Australia, might have a different tar to nicotine ratio than you would expect to find in an American blended cigarette.

So there are differences in tar to nicotine ratios, in different kinds of products. So I don't think I would say that tar to nicotine ratio is constant as a general fact.

MR. MURPHY: John, point of clarification before you pose your next question. When you refer to the tar to nicotine ratio of cigarettes, I think that is an unintentionally inaccurate way to refer to it. Did you mean or do you mean the tar to nicotine ratio of the smoke from cigarettes?

MR. PAYTON: Yes.

MR. MURPHY: I just want the record to be clear on that point.

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09:45:30 MR. PAYTON: Yes. I appreciate
09:45:32 that.
09:45:38 Q. Dr. Houghton, let me focus on a term
09:45:44 you used, which is "for a blend or a type of
09:45:48 cigarette." So just focusing on a specific blend
09:45:52 or a specific type of cigarette that has a blend
09:46:04 in it, which would have a specific fixed tar to
09:46:08 nicotine ratio; is that correct?
09:46:08 MR. MURPHY: Objection to form.
09:46:16 A. I mean, there is variation in
09:46:24 tobaccos from year to year. You know that bright
16:30 tobaccos grown in the U.S. can vary for maybe 2
09:46:34 to 3 and a half percent alkaloids in the
09:46:38 tobacco. The same thing could happen for
09:46:38 burley.
09:46:42 If you looked at those tobaccos, they
09:46:46 vary, okay? If you blend tobaccos of the same
09:46:54 type over multiple years, you can minimize THe *
09:46:56 variation, but there is still going to be some
09:47:04 variation. And since you have -- say, in
09:47:04 cigarettes that we make, you might have five or
09:47:08 six or seven different components in the blend.
09:47:10 Some may be varying up, some may be
17:14 varying down, depending upon the crop year,

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et cetera. It's not fixed absolutely. But by blending you can provide the consumer with a more consistent taste to the product than perhaps you would get if you made cigarettes out of one crop year.

I wouldn't say it's absolutely fixed. But in general, Marlboro's tar to nicotine ratio would hold fairly constant.

Q. Does Philip Morris have the technical ability to adjust the tar to nicotine ratio in any specific blend, say, Marlboro, which you just referred to?

MR. MURPHY: Objection to form.

A. Is it possible to, for instance, increase the nicotine content of a Marlboro at equal tar? The answer to that is yes. If you wanted to -- at 16 milligrams of tar, you wanted to change the existing Marlboro today, and increase the amount of nicotine, the first thing you would do is pull out the reconstituted tobacco.

If you pull out the reconstituted tobacco and made the Marlboro cigarette without the recon, and you made it at 16 milligrams of tar, the amount of nicotine in the smoke would

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increase.

Q. Apart from changing the blend, let me just take the blend as you defined it. We have a blend that's the Marlboro blend, just for purposes of this discussion, so we have a blend. Does Philip Morris have the technical ability to adjust the tar to nicotine ratio --

MR. MURPHY: Objection.

Q. -- of the smoke that comes from the cigarette that's made from that blend?

MR. MURPHY: Objection to form. You can answer, if you understand the question.

Q. You're asking me, okay, I have a Marlboro that's delivering 16 milligrams of tar and basically 1 milligram of smoke nicotine, and the blend remains constant, and how would I, without being able to change the blend, keep 16 milligrams of tar but move the nicotine delivery in the smoke independent of that.

The problem is, keeping the puff count and the tar delivery constant, I don't know of something that would allow me to specifically increase the tar to -- the nicotine by like 30 or 40 percent or reduce it by 30 or 40 percent and

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still get a Marlboro.

I don't know how to do that. There might be some minute change that could be effected through a balance of filter efficiency versus ventilation. But I don't think I could measure the difference using FTC testing methodologies.

If we measure nicotine in smoke and it's 1 milligram, what I recall is that's probably for any one test, it's one plus or minus point 1. I just -- I don't think I could prove that I could find a difference by just fine tuning construction of the cigarette.

Q. You in the middle of that answer said you don't think you could do it and still get a Marlboro out of it. Could you do it whether or not the final product was perceived to be a Marlboro?

MR. MURPHY: Objection to form. Move to strike the preamble. You can answer.

A. Well, you know, I could attempt to make a 3 milligram Marlboro out of that thing, and as a result of that maybe have to put 60 percent or 70 percent ventilation into that

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09:52:22 product.

09:52:26 In that case, maybe instead of being
09:52:34 3 point -- I don't know what the hell -- point 2,
09:52:38 it might be 3.25, okay? But a 3 milligram
09:52:44 Marlboro would not be a Marlboro, okay, as I
09:52:46 think about Marlboro as a full flavored cigarette
09:52:50 at 16 milligrams.

09:52:58 So could I affect the smoke
09:53:04 relationship of tar to nicotine by just diluting
09:53:08 the smoke down to where you're getting hot air?
09:53:12 Yes, that's what the data indicates, that as you
53:16 put more and more ventilation in, there is a
09:53:22 slight relationship change between tar and
09:53:24 nicotine, which is based upon physics.

09:53:32 Q. Is it possible to use pH adjustments
09:53:32 to change nicotine delivery?

09:53:34 MR. MURPHY: Objection to form. I
09:53:36 object to questions like "is it possible," John.
09:53:40 You at one point were phrasing questions in terms
09:53:42 of whether this witness had knowledge or
09:53:44 information of a technical ability to do
09:53:44 something.

09:53:46 MR. PAYTON: That's a fair point.

53:48 MR. MURPHY: I will let him answer

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)9:53:50 that question if that is your question.

)9:53:50 MR. PAYTON: I'll rephrase the
)9:53:52 question. It's a fair point.

)9:53:56 Q. Dr. Houghton, do you know if Philip
)9:54:00 Morris has the ability to adjust pH and thereby
)9:54:02 affect nicotine delivery?

)9:54:04 MR. MURPHY: Objection to form. If
)9:54:08 you understand what you're being asked, you can
)9:54:08 answer the question.

)9:54:14 A. Off the top of my head, you would
)9:54:20 think that you ought to be able to affect
4:28 nicotine delivery by putting materials in that
)9:54:36 are acids or bases in filters or in with the
)9:54:46 tobacco. It would just seem to make sense. The
)9:54:50 issue there is, I don't know if you're affecting
)9:54:58 the total delivery or you're affecting a
)9:55:04 relationship between tar and nicotine.

)9:55:08 And I'm not sure it's going to be
)9:55:10 smokeable, okay, or that consumers could smoke
)9:55:16 it, if you had to put a lot of acids or a lot of
)9:55:22 bases, basic material, onto tobacco or filters.

)9:55:26 But intellectually you would believe,
)9:55:30 hey, you might be able to do that.

5:32 Q. Dr. Houghton, are you familiar with

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09:55:36 any research that Philip Morris has done relating
09:55:40 to changing the pH in order to affect nicotine
09:55:42 delivery?
09:55:42 MR. MURPHY: Objection to form. Is
09:55:44 there a time frame?
09:55:44 MR. PAYTON: No.
09:55:46 MR. MURPHY: Any time frame prior to
09:55:48 March 24, 1994?
09:55:48 MR. PAYTON: Yes.
09:55:50 MR. MURPHY: Do you understand the
09:55:50 question?
55:50 THE WITNESS: Yes.
09:55:56 A. I'm trying to get some
09:56:02 understanding -- I know I have seen or heard
09:56:16 about work where acids or bases have been
09:56:22 evaluated, research work to evaluate whether you
09:56:26 could affect -- I just don't recall specific data
09:56:30 or specific research reports right now.
09:56:36 But I have heard that that issue has
09:56:38 been researched.
09:57:02 Q. And is it your understanding that tar
09:57:06 delivery may also be affected by changes in pH?
09:57:12 A. I would have to look at the specific
57:16 data from, say, a control cigarette versus a test

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cigarette. I could envision that if you put basic or acidic materials on tobacco, that you could affect everything, the flavor of the cigarette, the puff count of the cigarette.

If you affect the puff count of the cigarette you could affect the total delivery, tar and nicotine, carbon monoxide, carbon dioxides. I think if you put a lot of material in the tobacco you could affect the whole thing.

Now, whether or not you would have a smokeable product is a different issue. I would seriously doubt the ability to get a really -- cigarette that tastes like normal cigarettes if you did something that dramatic that would have the impact of changing puff count, total delivery.

So you've got an unacceptable product, probably. But I would have to take a look at specific information. If you have something you want me to look at, I'll look at it.

Q. Dr. Houghton, you've read this section, "Low tar/high flavor," now?

A. I did a few minutes ago. Yes.

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Q. I want to focus on the fourth paragraph on Roman numeral II, but it does refer to other paragraphs in there. So I'm just making sure you've read all of this.

A. Okay. I'll take another look on the specific issue, if I can find something in here.

Q. I'm about to change the subject. I wasn't --

A. Oh.

Q. I just want to make sure you've read this.

A. I've read it. I don't know if I have it memorized.

Q. Fair enough. I want to ask you about that fourth paragraph, and I actually want to go through it almost phrase by phrase.

MR. PAYTON: And Mr. Murphy, I'll read it in before I go phrase by phrase.

MR. MURPHY: Thank you, John.

Q. It reads, "If we use new technology, learn from Beta and what the competition is doing, we could maximize what we do best, make cigarettes minimizing the tobacco and tar and maximizing the nicotine delivery. We should be

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able to produce a product that appears to perform similarly to conventional cigarettes, but with very little tar, 2 to 4 mg, and about 1 mg of nicotine, and with the sensorial satisfaction of a 12 to 14 mg cigarette."

Dr. Houghton, do you know what the reference to new technology is referring to? Do you see it? It's the very --

A. Yes.

Q. -- first part.

A. I'm trying to read through it. I assume that -- and it is an assumption -- that what's being referred to here is the technology that was being employed to develop the Beta product. That's what I'm assuming here. But with -- I didn't write it. I don't know what the individual absolutely had in mind.

Q. Is Beta fairly described as a nicotine delivery device?

MR. MURPHY: Objection to form.

A. Beta is a new cigarette. Does the smoke of the Beta cigarette contain nicotine? The answer is yes. It also contains tar and small amounts of carbon monoxide, carbon

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dioxide. But it is a cigarette. It looks like a cigarette.

The advantages that I see in Beta is that it doesn't generate side stream smoke. It doesn't leave the smell of tobacco in the room after people have been smoking it, which a lot of consumers tell us is a disadvantage, it gets -- the smell of smoke gets on their hair and their clothes.

It does taste like a normal cigarette. It seems to have benefits that in this environment that our consumers are living in, not just here in the States but also in other countries around the world, that there does seem to be some tremendous benefits that the consumer, we hope, finds are in there, and hopefully will convert from conventional cigarettes to this kind of a product.

We think it has a potential, tremendous future potential for us. It's well protected by patenting, so it may provide us with a real advantage in the marketplace over our competitors plus give our consumers some of the benefits that we believe they've told us they

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wanted.

I'm very -- very enthusiastic about the product. I think it's the right way to go.

Q. You see the phrase at the end of that sentence, "maximizing the nicotine delivery"?

A. Yes, I see it.

Q. Do you understand that phrase?

A. Do I understand the words? Yes. Do I understand it as an objective of Philip Morris R&D? No.

Q. Do you understand that Philip Morris R&D knows how to maximize nicotine delivery?

MR. MURPHY: Objection to form. I don't understand that question.

A. Without understanding exactly what was in the individual's mind at the time, do I know how to make cigarettes or modify cigarettes to increase nicotine delivery? Yes. The way I do it is to increase the tar. I know how to do that.

I can take a 6 milligram cigarette and make a 7 out of it, or an 8. And as I said before, could I increase the nicotine delivery of a cigarette at equal tar? Sure. Pull the recon

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out. Pull the Oriental tobaccos out of the blend. The problem is, I may not be able to sell it to anybody, okay?

But could you do that? Sure.

Q. Does Philip Morris R&D know how to minimize tar and maximize nicotine?

MR. MURPHY: Objection to the form of the question. You can answer.

A. Certainly know how to reduce tar, okay? Been doing that for years with filtration, cigarette paper, through blending, through ventilation, reducing the weight of the tobacco in the rod. Do I know how to do that? Absolutely can reduce tar, provide consumers with cigarettes like Merit Ultima down to 1 milligram of tar.

Do I know how to do that and make a 5 milligram cigarette today that has twice the amount of nicotine that they do today? Yes, we saw that in the paper that we discussed earlier, okay, from Leo Meyer. You would have to buy nicotine and stick it in there.

Outside of that, what I really know how to do is make cigarettes with no nicotine. I

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just don't know how to make them to where the consumer really thinks they taste good.

Q. Dr. Houghton, do you recall seeing this sentence before, the first sentence of the fourth paragraph under Roman II that I read in?

MR. MURPHY: Objection. Asked and answered.

A. I don't recall having seen this, as I told you before. If I had, I probably would have reacted to that, saying that's not the objective here. The objective with Beta is to make a product that the consumers find to be a great replacement for conventional cigarettes because it tastes good and it has these other advantages over conventional cigarettes.

And it provides them with an opportunity to smoke in an environment that may not be, hopefully, hostile for them.

Q. Well, if Philip Morris used what it learned from Beta, could it maximize the -- what this refers to as what Philip Morris does best?

MR. MURPHY: I object to the form of the question.

A. I -- one, I don't necessarily agree

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10:09:20 with that statement there. And two, I think that
10:09:24 what we are doing today with the Beta is the
10:09:36 right thing. This is one individual's written
10:09:40 statement. It is not the direction of our
10:09:40 development.

10:09:46 Q. Does what you have learned from Beta
10:09:52 give you the technical ability to minimize tar
10:09:54 and maximize nicotine?

10:09:56 MR. MURPHY: Objection to the form of
10:10:00 the question. I assume that the question is not
10:10:04 intending to inquire into any of the design
0:06 details of the Beta product as such.

10:10:08 MR. PAYTON: It's not.

10:10:08 MR. MURPHY: Which have been ruled
10:10:12 off limits under the Court's May 17 ruling.

10:10:12 MR. PAYTON: It's not.

10:10:14 MR. MURPHY: But subject to that,
10:10:18 Dr. Houghton, I instruct you not to discuss the
10:10:24 particulars of the Beta product or prototype, I
10:10:24 will let you answer the question that's been
10:10:28 posed to you.

10:10:32 A. I don't believe we have technology
10:10:36 that could do what you're asking me as a result
0:46 of Beta. Beta is being developed today as an

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ultralight cigarette. I don't today know how to develop a Beta that smokes like a Marlboro, today.

Q. Can Philip Morris make a cigarette that minimizes the tar and maximizes the nicotine?

MR. MURPHY: I object to the form of the question. If you know the answer, if you understand the question, you can answer.

A. As I said before, we certainly know how to reduce tar. And as I said before, for a cigarette, like Marlboro or Marlboro Lights, which Marlboro Lights has reduced tar over Marlboro, if I wanted to take that cigarette and specifically increase nicotine, I told you we know how to do that. Simple. Just take the reconstituted tobacco out of it.

Now, I could then make an 11 milligram cigarette. It would not taste like Marlboro Lights. Do I know how to do that? Yes. I know how to increase nicotine delivery. I don't know how to make a Marlboro Lights with increased nicotine delivery that tastes like it without changing the blend.

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I just don't know how to do that, outside of what you outlined ELIMINATED before, which is buying nicotine and spiking the cigarette, and we don't do that. *

Q. Dr. Houghton, do you agree with this paragraph?

MR. MURPHY: I object to the form of the question. The question has been asked and answered in very specific detail. I don't understand what you're asking him at this point that's new, John. What is it?

MR. PAYTON: If he agrees with that paragraph.

MR. MURPHY: If you understand the question, you can answer it, but I think it's a vague and ambiguous question.

A. I agree that Beta can allow us to minimize the amount of tobacco in a cigarette, can minimize it or can reduce it, that it does allow us to make a lower tar cigarette, and that does allow us to make a cigarette that tastes just like conventional cigarettes at equal tar levels.

I do not know how to make a 2 to 4

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milligram cigarette, as it says down here, with 1 milligram of nicotine. And I do not know how to make a 2 to 4 milligram cigarette that tastes like a 12 to 14 milligram cigarette. No, I don't know how to do that.

Do I believe that having ultralight cigarettes that taste better is an advantage for our company over the competitors? Yes. Have we done everything we know know how to do to make the taste of our 1 milligram cigarettes better than the competitors'? Yes. But not -- not by adding nicotine.

Q. Dr. Houghton, are you saying that this paragraph is wrong, or that you were unaware of it?

MR. MURPHY: Objection. Asked and answered. It's an entirely absurd question, John. What is your question? You have two different questions there, at least one of which has been asked and answered.

MR. PAYTON: It's two questions. I'll break it down.

MR. MURPHY: Okay.

Q. Dr. Houghton, are you saying you were

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unaware of this capability of Philip Morris that's described in this paragraph?

MR. MURPHY: I object to the form of the question. I think it's been asked and answered. If you understand the question, you can answer again.

A. What capability are you talking about?

Q. A capability to make cigarettes minimizing tobacco and tar and maximizing the nicotine delivery.

MR. MURPHY: Objection. Asked and answered. That question has been precisely asked and answered. I gave you some latitude on that, John. You asked it several different ways to explore this witness's recollection on this point.

I think this is complete harassment.

Q. Were you unaware of this capability?

MR. MURPHY: Same objection. Asked and answered. Put a proper question. Let's move on, John. This is getting absurd. Let's move on. Put a proper question to the witness.

MR. PAYTON: It's a proper question.

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10:16:20 Q. You can answer the question.

10:16:22 MR. MURPHY: You have asked this question upon multiple occasions. You have gotten answers to this question. This is complete harassment, John. I think you should move on to a proper question. You know that this has been asked and answered.

10:16:36 Put a proper question to the witness. If you ask a different question I'll let him answer that question. But I think you're repeating the questions at this point.

16:58 Q. Dr. Houghton, is it your testimony that to your knowledge Philip Morris cannot do what is described in this paragraph, namely make a cigarette minimizing the tobacco and tar and maximizing the nicotine delivery?

10:17:10 MR. MURPHY: Objection. Asked and answered. I will let you answer the question again, Dr. Houghton. But this is it.

10:17:22 A. The way I read that paragraph, it is referring to -- we -- as you go to the next sentence, we should be able, at that time, somebody felt we should be able to produce a product that appears to perform similarly to

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conventional cigarettes.

So we should produce a nonconventional product that appears to perform similarly to conventional cigarettes. That is, low tar, 2 to 4 milligrams, 1 milligram of nicotine, and the taste or sensorial satisfaction of a 12 to 14 milligram cigarette.

What I believe the person is saying here is we should be able to do that, meaning in the future. I assume it's referring to nonconventional cigarettes of the Beta type.

That's what I'm reading into this thing. And what I'm telling you is that Beta, we have continued the development from that period of time, that we can make cigarettes at very low tar level in that sense; it is an ultralight product that we're developing, and that it does taste like equal tar products.

But Beta today is not a 2 to 4 milligram --

MR. MURPHY: That's going into the design details of Beta.

A. -- cigarette that meets this -- looks to me like an objective for the future. We

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should be able, and we're not able, to do what that thing was projecting we should be able to do in the future.

Q. Is the Low Tar/High Flavor Program designed to produce unconventional cigarettes or conventional cigarettes?

A. What it says here is, "The objective is to develop new technologies allowing us within the next two to four years to produce ultralow tar with the sensorial experience of lights or full flavored cigarettes."

Q. 2 to 4 mg cigarettes?

A. 2 to 4 milligram cigarettes, right, okay, over the next two to four years. And what it goes through in this introduction, explanatory introduction, and what it says in there is, hey, here is an approach, Beta.

Now, was the Beta group at that time totally separated and isolated in their development in the end of 1991, beginning of 1992? I just don't recall exactly. I don't believe we had isolated it as a separate organization.

So the fact that Beta was considered

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a low tar/high flavor type of product, 2 to 4 milligram, it doesn't surprise me that it's in this area of discussion.

THE VIDEO OPERATOR: We're going off the record. The time on the screen is 10:21:15.

(A recess was taken.)

THE VIDEO OPERATOR: We're back on the record. The time on the screen is 10:38:29.

Q. Dr. Houghton, do you still have Houghton Exhibit 17, "Low tar/high flavor," in front of you?

A. Yes.

Q. In Roman III it says, "Strategies." Do you see strategy 1? Strategy 1 reads, "Determine the parameters that control the temperature of a cigarette with the goal of reducing the temperature to somewhat above the distillation temperature of nicotine but below combustion temperatures, and develop technologies to achieve this goal."

Do you understand that sentence?

MR. MURPHY: Objection. Are you asking him whether he understands what it means or are you asking him whether he understands what

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http://legacy.library.ucsf.edu/tid/zbn07a00/pdf
Source: https://www.industrydocuments.ucsf.edu/docs/zthl0001

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it refers to? It's a very vague question.

Q. Do you understand what it means?

A. Relative to a conventional cigarette, I don't understand technically what they're trying to describe in that as a strategy.

Q. Do you know if temperature affects nicotine delivery?

MR. MURPHY: Objection to form.

A. I have seen experimental data that would indicate, not in a cigarette configuration, but in laboratory experiments, where tobacco specific types, I believe, have been heated, and as a result of the heating there are materials that are vaporized off of the tobacco, and that you can evaluate how much material would be released from tobacco as the temperature is increased.

I have seen information on that, yes.

Q. Has any of that information related to nicotine?

MR. MURPHY: Objection to form. Is this information in connection with a nonconventional cigarette development program?

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THE WITNESS: I believe that the original work was done just to understand what happens as you heat tobacco. I do believe it has some bearing on understanding the smoke chemistry from a Beta type product.

MR. MURPHY: I'll let you answer Mr. Payton's general question, but I would like to instruct you, Dr. Houghton, not to discuss any specific experiments or research performed in connection with nonconventional cigarette development.

Do you recall the question?

Q. Did any of that information relate to nicotine?

A. As I recall, there were graphs that showed, with time, amounts of materials vaporized off of tobacco, and over some temperature range, there is some temperature range that's associated with nicotine being volatilized from the tobacco.

Q. There's a reference in here to the distillation temperature of nicotine. Do you see that?

A. Yes.

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Q. What does "distillation temperature" mean?

A. I'm not absolutely certain what the author meant related to that. My understanding would be that that would be related to the kind of graphs that I have seen where materials were volatilized. Technically whether that's the same meaning as distillation, I'm not sure.

Q. Is it your understanding that cigarette smoke contains particulate matter?

A. Yes.

Q. Is it your understanding that cigarette smoke contains vapor?

A. Yes.

Q. And can nicotine be in both forms?

MR. MURPHY: I object to the form of the question. If you understand it, you can answer it.

A. My understanding is that essentially the majority of nicotine that's delivered in cigarette smoke is in the particulate phase.

Q. Do you know if the nicotine that is in the particulate phase ends up in a smoker's bloodstream?

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MR. MURPHY: I object to the form of the question.

A. I'm not an expert in that area. I have people who work for me who are experts in that kind of an area. But I'm not qualified to answer that.

Q. You don't know the answer to that?

A. No. I'm not qualified.

Q. Do you understand strategy 1 as described here?

MR. MURPHY: I object to the form of the question. Asked and answered. You can answer again. I think this has already been answered, though.

A. I'm not sure what the author was referring to when he wrote that. I read the other strategies to try and see if I could understand it, and it kind of looks like it's sitting off by itself. I just don't know.

Q. Would you take a look at strategy 4. It's on the next page. It's on the page you're looking at now. Do you see strategy 4 there? It reads, "Determine how to develop filters to provide satisfactory resistance with minimal

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Source: https://www.industrydocuments.ucsf.edu/docs/zthl0001
http://legacy.library.ucsf.edu/tid/zbr07a00/pdf

filtration properties for specific compounds such as nicotine and water."

A. Yes, I see the strategy.

Q. Do you know if Philip Morris has the ability to have selective filters?

MR. MURPHY: I object to the form of the question. If you understand it, you can answer.

Q. Do you understand what I mean by "selective filter"?

A. I can tell you what I understand by "selective filter."

Q. That's fine.

A. We do have or have developed different types of filters, okay, which allow us to change the taste or change the ventilation of filtration relationships for cigarette smoke.

We have patents issued to us on specific filters that are different than straight cellulose acetate filters. We have filters such as carbon filters that do selectively reduce certain compounds in cigarette smoke.

We have developed concentric core filters with paper or with paper and charcoal

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10:49:18 that enable us to make better tasting ultralow
10:49:22 delivery cigarettes because we can get the lower
10:49:24 delivery without as much ventilation.
10:49:32 So in that sense they are special,
10:49:36 and where you have carbon, I would say that that
10:49:40 would border on a concept of selective filtration
10:49:42 in that it's more efficient for reducing certain
10:49:50 compounds. I do not have a filter that would
10:49:56 only remove carbon monoxide or only remove one
10:49:58 single compound.
10:50:02 And if -- and I'm not sure what the
50:04 strategy 4 is referring to.
10:50:10 Q. Do you have a filter that would more
10:50:14 efficiently remove tar than nicotine?
10:50:22 A. All of the filters that we're using,
10:50:24 and what I know how to make, basically reduce
10:50:26 both.
10:50:30 Q. At the same rate?
10:50:30 MR. MURPHY: Objection to form. You
10:50:32 can answer.
10:50:36 A. Essentially the same rate, as far as
10:50:40 the filtration goes, if it removes the
10:50:44 particulate matter or reduces the tar and the
50:44 nicotine.

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Source: https://www.industrydocuments.ucsf.edu/docs/zthl0001

Q. At the same rate?

MR. MURPHY: Objection to form. You can answer.

A. At essentially the same rate. The reduction in tar and nicotine from a Marlboro to a Marlboro Lights is essentially the same rate.

Q. The filters that Philip Morris uses are cellulose acetate tow filters; is that correct?

A. The majority of the filters that we use on our cigarettes are made from cellulose acetate, yes.

Q. Do you know what the word "tow" means, t-o-w?

A. Yes.

Q. What does it mean?

A. Well, "tow" is the term that's used to describe the form in which the cellulose acetate is brought to Philip Morris or sold to Philip Morris.

Q. And do you know the term "web" as it is used to describe a cellulose acetate filter?

A. Yes.

Q. Could you describe the difference

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between tow and web?

A. For me there isn't really any difference.

Q. Does the cellulose acetate web filter have different performance capabilities?

A. What are you referring to as the cellulose acetate web?

Q. It's a filter, isn't it?

MR. MURPHY: Objection to form.

A. I'm not sure in what way you're using that term. As I told you, we buy cellulose acetate. The cellulose acetate we get in today comes in a form that sometimes -- most of the times is referred to as tow, but sometimes is referred to as a web in that it's bound together.

There may have been a different material that was also referred to as cellulose acetate web that you're referring to here. And I'm confused on what you mean.

Q. Dr. Houghton, are you aware of a cellulose acetate web filter that filters nicotine less efficiently than it filters tar?

MR. MURPHY: Objection. The witness

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just explained he's not sure how you're using that term. I don't understand what your question is.

Q. Do you understand the question?

A. I'm not -- I'm just not certain how you're asking me the question, what it means, okay? If you have something you want me to read, I'll read it. I just -- I'm just not understanding exactly how you're framing this question and what it's supposed to be asking me.

Q. Dr. Houghton, are you aware of any filter that filters nicotine less efficiently than it filters tar?

MR. MURPHY: Objection to form.

A. Off the top of my head, sitting here today, I do not know of a specific filter with that property.

Q. Dr. Houghton, are you familiar with a Philip Morris R&D program known as the Nicotine Program?

MR. MURPHY: Objection to form. You can answer.

A. I don't recall any specific program since I've been at R&D referred to as the

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Houghton - Highly Confidential - Trade Secret Nicotine Program.

(Houghton Exhibit 18 for identification, The Nicotine Program.)

Q. Dr. Houghton, you've just been handed what's been marked Houghton Exhibit 18, a six-page document. It has a title, it says, "The Nicotine Program." It has production number PA 915260 through PA 915264.

There's a sixth page that is blank and has no production numbers on it. It also has production number 1003289991, and again, the next to last page is 9995, and the last page has no production numbers or anything else on it, actually.

MR. MURPHY: It's just an extra page. Do you know whose files this comes from?

MR. PAYTON: I believe this document came from Dr. Dunn's files.

Q. And I can make a representation that I believe this document most certainly predates your presence at R&D.

A. Okay.

MR. MURPHY: That's consistent with my understanding as well.

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10:59:14 Q. Dr. Houghton, have you seen this
10:59:14 document before?
10:59:18 A. I don't believe so. I don't recall
10:59:22 having seen anything called the Nicotine
10:59:22 Program.
10:59:54 Q. If you go to the third page, there is
10:59:58 a heading that says "The Nicotine Program" again,
11:00:02 Roman III, do you see that?
11:00:02 A. Yes, I see that.
11:00:06 Q. And if you then turn the page, it
11:00:08 goes through a number of things just by
10:10 headings. I simply want to ask you if you're
11:00:16 familiar with the headings. "Chemistry" is on
11:00:16 the next page.
11:00:18 A. I certainly am familiar with the
11:00:22 title, the term "chemistry," okay?
11:00:24 Q. Were you -- are you now aware of
11:00:28 research that Philip Morris was conducting into
11:00:28 the chemistry of nicotine?
11:00:30 MR. MURPHY: As of when?
11:00:34 Q. The research would have occurred in
11:00:38 this time frame, which is the 1970s, early '80s.
11:00:40 But are you aware of it now?
0:42 MR. MURPHY: Objection to form.

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You're asking him whether he is now aware of research conducted on this subject in the 1970s; is that correct?

MR. PAYTON: Yes.

Q. Is there a time when you became aware of research that Philip Morris had conducted in the 1970s and 1980s into the chemistry of nicotine?

A. I was aware that Philip Morris had synthesized some compounds referred to as nicotine analogues. I was aware of that. And that's referred to under this chemistry section.

Q. Do you know who was working on that project?

MR. MURPHY: John, the subject of nicotine analogues is something on which ABC sought discovery, argued for the relevance of before Judge Markow, and Judge Markow ruled clearly and unequivocally in January that ABC was not entitled to discovery into the subject of nicotine analogues.

I think you know that. We discussed it at Dr. Lilly's deposition the other day. I think you are insisting on defying the Court's

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ruling with respect to this. If you are trying to find out what this witness's general knowledge of research subjects is, I'm certainly prepared to give you some latitude in that respect.

MR. PAYTON: That's all I'm inquiring for.

MR. MURPHY: I just want it stated on the record again, so there's no ambiguity about this. I do not think that the subject of nicotine analogue research is an appropriate area of inquiry with this witness.

Q. Do you know who was in charge of that research?

A. I'm not sure who might have been in charge of the preparation of nicotine analogues at that time. Relative to the entire program here, I don't know who was in charge of it, if it did exist. I know the nicotine analogue work existed. That's the only thing I've had a chance to look at.

Q. Do you see B, "Peripheral nervous system pharmacology"?

A. Yes.

Q. Did there come a time that you became

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11:03:14 aware of research Philip Morris was conducting
11:03:18 into the peripheral nervous system pharmacology
11:03:18 of nicotine?
11:03:28 A. I was not aware of the kind of work
11:03:30 that's described under that heading here, no.
11:03:34 Q. And do you see C, "Central nervous
11:03:34 system pharmacology"?
11:03:36 A. Yes.
11:03:36 Q. Did there come a time when you became
11:03:40 aware of research that Philip Morris was doing
11:03:42 into the central nervous system pharmacology of
03:42 nicotine?
11:03:44 MR. MURPHY: Objection to form.
11:03:52 A. Not -- not within the time frame that
11:03:54 we're talking about.
11:03:58 Q. Not before March 24, 1994?
11:04:00 A. No. Relative to the words that are
11:04:06 included in this thing, when you get to the word
11:04:10 "Reinforcing properties of nicotine," not before
11:04:14 the 24th of April --
11:04:14 MR. MURPHY: Of March 1994.
11:04:16 A. Of March.
11:04:26 Q. Do you see, D, "Pharmacokinetics"?
04:32 Do you know what "pharmacokinetics" means?

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A. No, sir.

Q. Did there come a time when you became aware of research that Philip Morris was conducting into the pharmacokinetics of nicotine?

MR. MURPHY: Objection to form.

A. No.

Q. Do you see E, "Smoking studies"?

A. Yes, I see it.

Q. Are you familiar with smoking studies that Philip Morris has conducted with respect to nicotine?

MR. MURPHY: Objection to form.

A. I'm not familiar with any possible work that was done in that area.

Q. Dr. Houghton, do you know --

MR. MURPHY: Could we take a very short break, John? I apologize. Dr. Houghton has to call his office.

THE VIDEO OPERATOR: We're going off the record. The time on the screen is 11:07:17.

(A recess was taken.)

THE VIDEO OPERATOR: This is videotape number 7, the continuation of the

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Houghton - Highly Confidential - Trade Secret deposition of Dr. Houghton. Today is August 10th, 1995. The time on the screen is 11:27:45. You're on the record.

(Houghton Exhibit 19 for identification, Project 4009, Development smoke studies.)

Q. Dr. Houghton, you've just been handed a report from the Philip Morris Research Center, charge and title number, it says "Project 4009, Development smoke studies." It's dated May 17, 1983.

It says, "By B. L. Goodman and approved by P. N. Gauvin." It has production number PA 595561 through PA 595598, or aught 000134660 through aught 000134697.

You'll see on the --

MR. MURPHY: The first PA number, John, I don't mean to interrupt you, but PA 5 -- the document I have is PA 595561 through --

MR. PAYTON: Isn't that what I said?

MR. MURPHY: -- PA -- I don't understand how -- this is not sequential, I don't think. We have a --

MR. PAYTON: Where isn't it

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sequential?

MR. MURPHY: I apologize. I've got two documents together. It's fine.

Q. You'll see on the first page, Dr. Houghton, that you show as -- on the distribution list it says, "Houghton FTR." Do you see that?

A. Yes.

Q. I take it that's a reference to where you were as the director of R&D for Philip Morris International?

A. Yes.

Q. That's the standard indication of that, FTR?

A. Yes.

Q. Do you recall this report?

A. Not specifically.

Q. Do you want to go to the table of contents? It's just on the very next page.

(Witness complies.)

A. Okay.

Q. Actually, before I ask you some questions about that, let me ask you just a few general questions. Dr. Houghton, do you recall

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if you received copies of reports from Philip Morris U.S.A. Research Center when you were the manager of R&D at Philip Morris International?

MR. MURPHY: Objection. Asked and answered. You can answer again.

A. Specifically, I don't recall getting reports outside of -- what was issued at the time was called a monthly R&D report, and I do recall getting copies of that. Whether I got every one during that period, I don't know.

Q. From the title of this record, "Development smoke studies," and the report title is "Development smoke studies annual report," do you see that, on the first page?

A. Yes.

Q. Do you recall why you would have received this? Do you know why you would have received this?

MR. MURPHY: I object to the form of the question. If you understand, you can answer.

A. Specifically, I don't know why this would have been -- this thing is dated like two weeks after I arrived there. So I'm not sure why

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this would have been sent to me.

Q. If you go to the table of contents, you'll see under 3-D there is a title of "Human smoker simulator studies." Do you see that?

A. Yes, I see that title.

Q. And there's a list of items underneath there.

A. Yes.

Q. Does this refresh your recollection at all as to having seen this report or --

A. No. It really doesn't.

MR. MURPHY: Do you want him to review that section of the report, John?

MR. PAYTON: Let's just go to one section, which is D-3. It's on page 28, the nicotine delivery study.

(Witness complies.)

Q. I would like you to read the paragraphs, but I want to tell you before you read them what it is I'm going to ask you, just so you know why I'm directing your attention there. I'm going to ask you if that refreshes your recollection as to whether or not you were familiar with the nicotine delivery study.

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A. Okay.

(Witness complies.)

A. Just the two paragraphs you want --

Q. Yes, that's all there is.

A. Okay.

Q. Dr. Houghton, does that refresh your recollection?

A. It doesn't change my recollection of having gotten the thing or having seen these two paragraphs before.

What it does do is reflect upon the question that you asked me about the prototype that Howard Spielberg brought me where nicotine was added to a Merit ultralight cigarette to get higher delivery, and the fact that that was, as I recall I told you, was subjectively not a good cigarette, it was harsh, irritating, burning, et cetera.

And in just reading through this one paragraph, it indicates that whoever they had for smokers there didn't notice a difference in those cigarettes there, too. I just don't know exactly what the cigarettes are from this thing, or how they were made.

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Q. We'll get you one.

A. Do you have one? I don't particularly want to experience it again, and I certainly don't believe our consumers do.

MR. MURPHY: You're not required under the rules of Virginia to experience it again.

THE WITNESS: Thank you.

Q. This doesn't refresh your recollection, remembering that there was a nicotine delivery study?

A. No, it doesn't.

Q. Does it refresh your recollection as to nicotine delivery studies that were taking place at Philip Morris International R&D?

MR. MURPHY: I object to the form of the question. You can answer.

A. I don't recall any. I was in Neuchatel then. I was not in R&D at that -- before I went there. I don't recall ever having heard of this study.

Q. Anything else in here that's familiar?

MR. MURPHY: I object to the

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11:37:44 question. Are you directing his attention --

11:37:46 A. I'll read the whole thing through if

11:37:48 you want me to, to tell you if stuff is familiar.

11:37:50 MR. MURPHY: Are you asking if

11:37:50 anything in the document is familiar?

11:37:52 Q. No, I'm simply asking, you looked

11:37:54 like you were looking through it, Dr. Houghton,

11:37:58 and something had caught your attention. I was

11:38:00 asking if there was anything you had noticed that

11:38:06 had jogged your recollection.

11:38:06 A. No, what I had noticed was, in the

38:06 line right below it says, "Some cigarettes were

11:38:08 made for VP testing." I was just wondering what

11:38:10 that meant.

11:38:10 Q. I think you were a VP.

11:38:16 A. I wasn't at that time. I was kind of

11:38:18 wondering what it meant. And I looked up the

11:38:20 reference and I still can't tell what it means..

(Houghton Exhibit 20 for identification, memo from J. L. Charles to Dr. R. B. Seligman dated March 18, 1980.)

11:38:52 Q. Dr. Houghton, you've been handed a

11:38:56 two-page memo from J. L. Charles to Dr. R. B.

39:00 Seligman dated March 18, 1980, production number

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11:39:06 PB 103197 through 98, or 1003724284 through
11:39:10 4285.
11:39:12 Do you recognize this?
11:39:16 A. Well, I'll tell you what. That first
11:39:18 paragraph looks like it came directly out of that
11:39:20 document 18 you gave me.
11:39:22 Q. Why don't you take a look.
11:39:24 (Witness complies.)
11:39:36 A. It's not the same document. It
11:39:42 certainly is similar to the same, you know, as
11:39:42 far as the wording goes.
39:44 Q. It's pretty close.
11:39:46 A. Which I guess allows us to then say,
11:39:50 hey, this document must have been THE original -- I *
11:39:52 assume this one came first.
11:39:56 Q. Let me direct your attention to the
11:40:02 fourth paragraph of -- this is Houghton Exhibit
11:40:08 19, am I right? This is Houghton Exhibit 20.
11:40:10 MR. MURPHY: And the prior exhibit to
11:40:14 which he's referring is Exhibit 18, I believe.
11:40:18 Q. And you see in the fourth paragraph
11:40:20 of Exhibit 20, which is the March 18, 1980 memo
11:40:26 from Dr. Charles to Dr. Seligman, he refers to
10:30 this as being, "The above is an excerpt from my

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introduction to the Nicotine Program which I wrote on 12/1/78."

Do you see that?

A. Yes.

Q. And there is some similarity?

A. There definitely is in that first paragraph.

Q. Who is Dr. Seligman?

A. Specifically at 1980, he may have been at that time vice president of R&D, at that time. I believe so.

MR. MURPHY: I would just direct the witness's attention, John, to page 5. At the lower right hand corner of page 5, there is --

MR. PAYTON: Of 18?

MR. MURPHY: Of Exhibit 18, excuse me, of Exhibit 18, page 5, PA 915264. There is a reference at the bottom of that page, lower right hand corner, to a date of 12/1, and then the date or year is cut off. I just wanted him to be aware of that.

A. So it is possible that this March 18th, 1980 memo is referring back to this from '78. Okay.

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Q. Just so you understand what my understanding is, and this is not to be evidence here, Exhibit 18 I believe came from Dr. Dunn's files. But I believe Exhibit 20 is explaining -- is commenting on Exhibit 18. That's all I'm saying.

MR. MURPHY: The record will be what it will be.

MR. PAYTON: I understand.

MR. MURPHY: The testimony will be elicited by the witnesses. But I understand what you're saying, John. I also just wanted the witness to be aware of the fact that there is a reference to December 1st, albeit without a date, in Exhibit 18.

Q. Who was Dr. Charles at this time?

A. Specifically what Dr. Charles's position was in 1980, I'm not sure.

Q. Do you know if at around that time Dr. Charles was or became the director of research?

A. Dr. Charles during his career was director of research. I just don't know what the timing was.

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11:43:18 Q. Dr. Houghton, do you recall ever seeing this memo before?

11:43:22 MR. MURPHY: "This memo" being Houghton Exhibit 20?

11:43:24 MR. PAYTON: 20, I'm sorry.

11:43:26 MR. MURPHY: Right.

11:43:30 A. I don't recall having seen this.

11:43:36 Q. The subject of the memo is "The nicotine receptor program, University of Rochester." Are you familiar with that program?

11:43:46 A. I'm familiar with the University of Rochester, but not this specific program.

11:44:12 Q. Have you had occasion to talk to Dr. Charles about his views on nicotine?

11:44:26 A. When Dr. Charles was -- prior to his retirement, and occasionally thereafter, I've had a lot of conversations with Dr. Charles. I don't recall specifically a conversation that delineated his view on nicotine in 1990 or something like that.

11:45:14 Q. Did you know that Dr. Charles thought that nicotine may be the most important component of cigarette smoke?

5:18 MR. MURPHY: I object to the form of

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11:45:20 the question.

11:45:30 A. I don't know what Dr. Charles thought
11:45:34 in 1978 or 1980.

11:45:36 Q. Did he ever tell you that?

11:45:38 A. I don't recall having a discussion on
11:45:44 that. I do read in there it says, "How important
11:45:46 that role is remains to be determined," which it
11:45:50 says in paragraph 4 on the 1980 memo.

11:45:54 MR. MURPHY: Houghton Exhibit 20.

11:46:24 Q. When you returned from Europe to be
11:46:32 the vice president of R&D in 1986 --

46:32 A. Yes.

11:46:34 Q. Were you briefed on the Nicotine
11:46:34 Program?

11:46:36 MR. MURPHY: Objection to form. Lack
11:46:38 of foundation. You can answer.

11:46:42 A. On what nicotine program? The one
11:46:44 that's referred to in the '78?

11:46:46 Q. On any nicotine program.

11:46:54 A. I don't recall a briefing on what I
11:47:00 see in this 1980 memo specifically, and I don't
11:47:06 know if -- I don't recall these activities at
11:47:08 that time.

(Houghton Exhibit 21 for

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identification, memo from T. S. Osdene to Dr. R.
B. Seligman and directors dated August 12, 1980.)
11:48:04 Q. Dr. Houghton, you've just been handed
11:48:10 what's been marked Houghton Exhibit 21, a
11:48:14 two-page memo from T. S. Osdene to Dr. R. B.
11:48:16 Seligman and directors dated August 12, 1980,
11:48:20 production number PA 626920 through 21 or
11:48:30 1003030124 through 0125. It's entitled
11:48:34 "Evaluation of major R&D programs."
11:48:40 Do you know who T. S. Osdene is?
11:48:46 A. Tom Osdene was a scientist at R&D.
48:50 I'm not sure exactly what his position was in
11:48:54 August of 1980.
11:49:02 Q. Do you see the second page there, two
11:49:08 cc's, Dr. E. B. Sanders and Mr. W. F. Kuhn?
11:49:10 A. Yes.
11:49:10 Q. Do you know who Mr. Kuhn is?
11:49:16 A. I know Bill Kuhn, yes.
11:49:18 Q. Who was he then?
11:49:20 A. I'm not sure exactly what his
11:49:30 responsibility was at the time. He retired from
11:49:32 Philip Morris about three years or so ago.
11:49:32 Q. Did he work in R&D?
49:34 A. Yes, he did.

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Q. And Dr. E. B. Sanders?

A. Yes, Dr. Sanders is a scientist who is still working for Philip Morris today.

Q. On page 1, do you see number 5, "The Nicotine Program"?

A. Yes.

Q. Dr. Houghton, are you aware of the establishment, about this time, 1980, of a behavioral pharmacological laboratory at the Research Center?

MR. MURPHY: Objection to form. Lack of foundation. If you understand the question, you can answer it.

A. Well, 1980, I would not have been aware of a behavioral pharmacology laboratory at R&D.

Q. Prior to March 24, 1994, did you become aware of the establishment of a behavioral pharmacological laboratory?

A. I had been aware that there was a laboratory with that name prior to the date.

Q. And do you recall generally when you became aware of the establishment of that laboratory?

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MR. MURPHY: Objection to form.

A. Specifically, no. It would have been sometime after I came to R&D in Richmond ~~in~~ AND 1994.

Q. Sometime between 1986 and 1994?

A. Yes.

Q. Were you told what type of research the behavioral pharmacological laboratory was conducting?

MR. MURPHY: Objection. Lack of foundation.

A. My recollection is I had some concept that there was testing done there with animals. But specifically how the tests were done, how the work was performed, I would not have been aware of.

Q. Do you know what the results of any of that testing was?

A. Up until 1994, I was not aware of reported findings out of that laboratory. I became more aware after that time frame.

Q. After March 4, 1994?

A. Yes.

Q. Do you know Dr. Denoble?

A. I did not know of him before March of

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1994 in the sense that I have never met the gentleman. I knew he had worked at Philip Morris, but I did not know him.

Q. You had heard of him?

MR. MURPHY: Objection to form.

A. Yes. I had -- I was aware of him in relationship to the behavioral pharmacology laboratory.

Q. Have you ever attended any presentations by Dr. DeNoble?

A. Not that I know of.

Q. Do you know a Dr. Mele, M-e-l-e?

A. I did not become familiar with that name until after March 24th.

MR. MURPHY: 1994?

THE WITNESS: Yes.

Q. Dr. Houghton, I want to ask you questions, and I'm asking about your knowledge prior to March 24, 1994.

A. Yes.

Q. I'm not going to repeat that, but these are all premised on you knowing something before March 24, 1994.

MR. MURPHY: That's fine.

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Q. Did there come a time when you learned that the behavioral pharmacological laboratory had been closed?

A. Yes.

Q. And I guess I have to ask you this question. If that was before March 24, 1994 -- was it before March 24, 1994?

A. Yes, I said so before.

Q. And how did you come to learn that the behavioral pharmacological laboratory had been closed?

A. I don't recall the specific reason for a discussion on the subject. My recollection is that Dr. Charles made me aware of the fact that there had been a laboratory there that had done animal testing called the behavioral pharmacology laboratory, and that it had been shut down at some time in the past. And I heard the name Denoble mentioned as part of the group that worked there.

I don't recall what it was in relationship to at this time, what had brought up the discussion where he gave me a general overview of the fact that it had been started and

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shut down, et cetera, stopped.

Q. And this conversation you had with Dr. Charles, do you recall when that was?

A. No, that's why I'm saying, my recollection is that it was Jim Charles who gave me an overview of that laboratory having operated, and then the ending of that research work.

Q. Would it have been in 1986?

MR. MURPHY: Objection to form.

A. I just -- I don't recall exactly. I can't recall what prompted the discussion. If I could recall that, I might be able to get some time frame. But I just don't recall. It would have been before Dr. Charles retired.

Q. Dr. Charles retired, I believe you said last time, 1991 or so.

MR. MURPHY: Objection. The prior testimony speaks for itself. If you want to repeat your answer, you can.

A. I don't recall. I thought it was like in the fall, may have been in the fall of '91, I believe is what I recalled.

Q. Did Dr. Charles tell you why the

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laboratory was shut down?

A. I don't recall specifically discussions on why the decision was not to continue research in that area. I don't recall that.

Q. Did you ever ask to see any of the research that had been conducted by that laboratory?

A. I don't recall asking for that kind of research.

Q. Do you recall inquiring of anyone as to why the laboratory was shut down?

A. I don't recall any discussions on that within -- up until March 24th, 1994.

Q. Dr. Houghton, from 1977 to 1980, you were the general manager of Park 500; is that correct?

A. Yes, I believe that's right.

Q. And from 1980 to 1983, you were the general manager of the Richmond processing plant?

A. That's correct.

Q. I want to focus on that six-year time period, 1977 to '83. Are you aware of any

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studies conducted during that time period regarding the alkaloid content of RL?

MR. MURPHY: Objection to form.

A. What do you mean by "studies"? If you mean am I aware that there were analysis of the product that would have measured alkaloids, the answer is absolutely yes.

Q. Was there analysis of the product, RL, that would have measured for nicotine?

MR. MURPHY: Objection to form.

A. I think the analysis measures alkaloids, of which nicotine is one.

Q. At some time in this time period, 1977 to 1983, was there a process developed by Philip Morris to remove potassium nitrate from RL?

MR. MURPHY: Objection to form.

A. Can you ask that question again? I missed something in there.

Q. During this time frame, 1977 to 1983, did Philip Morris implement a process to remove potassium nitrate from RL?

A. That was the issue that I had in there. I think the development was done at R&D.

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The implementation of the process to remove potassium nitrate from the RL product I believe was implemented in 1970 -- either late '76 or '77. In that time frame. That's what I recall. It may have been '77.

Q. Did you play any role in the implementation of that process?

A. At the time I would have been involved in understanding the process that had been developed at R&D. I would have reviewed processing specification and set specifications for that process relative to flow rates and temperatures through the equipment.

I would have been involved in the startup of the process. I think those would have generally been the kinds of activities that I would have been involved with at that time.

Q. During this time frame that I defined, 1977 through 1983, are you aware of any efforts by Philip Morris to remove alkaloids from RL?

MR. MURPHY: Objection to the form of the question. 1977 to 1993, were there any efforts, or was he aware of efforts during that

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time period, or at any time thereafter? This is a temporally confused question.

MR. PAYTON: The time period was 1977 through '83.

MR. MURPHY: I understand that, but are you asking him whether during that time period -- just if you could pose the question again, John. Maybe I'm confused.

Q. In this time period, 1977 to 1983, were you aware in that time period of any efforts by Philip Morris to remove nicotine from RL?

MR. MURPHY: Objection to form.

A. I don't recall having ANY a specific * knowledge of a development program or a research program to assess methodology for removing nicotine or alkaloids from RL. I don't recall hearing that. Not having been in R&D, it's possible. I just don't recall.

Q. During this same time frame, 1977 through 1983, do you recall concerns at Philip Morris about the level of nicotine in RL?

MR. MURPHY: Objection to form. Lack of foundation.

A. What do you mean by "concerns"?

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Q. Are you aware during this time period of -- strike the question.

Do you know if during this time period, 1977 through 1983, Philip Morris had the technical ability to remove nicotine from RL?

MR. MURPHY: Objection. Lack of foundation. Calls for speculation. Don't guess. If you know the answer to the question, you can answer it.

A. I don't know what R&D may have known or may not have known.

(Houghton Exhibit 22 for identification, patent number 4,256,126.)

Q. Dr. Houghton, you've just been handed what's been marked as house Exhibit 22. It's a patent, patent number 4,256,126. It's dated March 17, 1981. It is marked production number PA 151829 through PA 151870, or 2022902468 through --

MR. MURPHY: There's a break in the Bates numbers.

MR. PAYTON: Yes, there's a break in your production numbers. I think ours are consecutive. The other production numbers are

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2022902468 through 2022902476, and 2022903177 through 3209. And there are two documents attached, and I believe that one is the submission and the other is the actual patent office version.

MR. MURPHY: These are clearly two separate documents.

MR. PAYTON: They are two separate documents.

MR. MURPHY: Right.

MR. PAYTON: But I believe one is what is submitted and the other is what is produced.

MR. MURPHY: The documents speak for themselves, but they are clearly two separate documents.

MR. PAYTON: I was going to use both documents because one is much easier to read than the other, but I'll refer to only the official version.

Q. The inventor of this patent is Robert B. Seligman and Gus Keritsis. Those are both Philip Morris employees?

A. They were at that time, yes.

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Q. And Dr. Seligman is the person you identified as the vice president of R&D?

A. He was during his career vice president of R&D. I don't know specifically what he was doing in August of 1978, what his accountability was.

In fact, as you know, the patent gets filed in August of '78, it could relate to work that may have been done two or three years previous to that, okay? So I don't know what he might have been -- his accountabilities ~~may~~ MIGHT have been at that time.

Q. And the date that you just referred to, August 2, 1978, that's the date that the patent indicates it was filed; is that correct?

A. My understanding of patents, that's the date when the original application is submitted to the patent office.

A. Dr. Houghton, could you look at the second document in this exhibit. If you just pull it apart. Yes, you have pulled it apart. And the second document has as its heading, IT HAS on the left upper side, a number, 582-845, and under that it says, "PM number 662."

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12:12:12 Do you see that?
12:12:14 A. Yes.
12:12:16 Q. And then it says, "Title: Smoke
12:12:18 material and its method of preparation," and it
12:12:20 says, "Inventors, R. B. Seligman and Gus D.
12:12:24 Keritsis."
12:12:24 A. Yes.
12:12:28 Q. Do you recognize the second document,
12:12:30 its form?
12:12:32 MR. MURPHY: Objection.
12:12:34 Q. Not its content. Is this the form
12:36 that Philip Morris uses for patent applications?
12:12:38 MR. MURPHY: Objection to form. You
12:12:40 can answer the question.
12:12:46 A. I'm not sure specifically what the
12:12:50 purpose of this document was in I assume 1978 or
12:12:54 sometime before that. I just don't know
2:12:58 specifically what this document was generated
12:12:58 for.
12:13:06 Q. Then let's just look at the first
2:13:06 document.
12:13:06 A. Okay.
12:13:08 (Witness complies.) Patent
3:16 Q. The title of this ~~document~~ is X

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"Smoking material and its method of preparation." Are you familiar with this patent?

A. I'm not familiar with this patent. But I can read it.

Q. I guess I would like you to read the patent.

A. Okay.

MR. PAYTON: I will represent to both of you that I have read both documents and I believe they're identical. And if you want to take that, my representation, it's much easier to read the second document.

MR. MURPHY: I notice, though, John, that the second document has handwritten edit.

MR. PAYTON: And the edit is reflected in the official document.

MR. MURPHY: Okay.

THE WITNESS: You're saying the print is --

MR. PAYTON: That's all I'm saying.

MR. MURPHY: It's easier on your eyes, is all he's saying.

MR. PAYTON: Something we all have to

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12:14:26 pay attention to.

12:14:28 MR. MURPHY: That's true indeed.

12:16:30 (Witness complies.)

12:18:52 Q. And, Dr. Houghton and David, I guess

12:18:56 I would ask if you read up to where the examples

12:18:56 begin.

12:19:00 A. How far is that?

12:19:02 Q. That's page 13.

12:19:08 A. I'm a slow reader.

12:19:12 (Witness complies.)

12:27:36 A. I think I've gotten through it. I

27:38 have not had a chance to look through the

12:27:38 examples.

12:27:44 Q. Having read up to the examples, did

12:27:46 that refresh your recollection as to whether or

12:27:50 not you had ever seen or reviewed this patent

12:27:50 before?

2:27:52 A. I don't recall having seen this

12:27:54 patent before.

12:27:56 Q. Dr. Houghton, are you familiar with

2:27:58 patents?

12:28:00 MR. MURPHY: Any patents?

2:28:02 MR. PAYTON: Just with patents.

8:04 Q. Do you review patents at R&D?

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MR. MURPHY: As a matter of course?

MR. PAYTON: Yes, as a matter of course.

A. Yes, I would be familiar with patents.

Q. And you're familiar with Philip Morris patents?

A. I'm familiar with some Philip Morris patents. Not every one.

Q. And do you understand Exhibit 22 to be a Philip Morris patent?

MR. MURPHY: Objection to form.

A. This appears to be a patent that was issued to Philip Morris. It probably is no longer in effect. It probably ran out last week as a patent.

Q. How long do patents last?

A. Well, the way it used to be was 17 years from date -- well --

Q. Date of granting of patent?

A. Yes.

Q. So this would --

A. And now they've just recently HAVE changed * the way that's handled. I'm not familiar exactly

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12:29:22 with what the rules are today.

12:29:24 Q. So this would still be in effect?

12:29:30 A. Yes, this would be in effect.

12:29:34 Q. Did you understand this patent?

12:29:34 A. I have a general understanding of

12:29:38 what they were trying to do, yes.

12:29:50 Q. Do you recall having any discussions

12:29:54 with Dr. Seligman about the removal of tar and

12:29:58 nicotine from RL?

12:30:00 MR. MURPHY: Objection to form.

12:30:02 A. Are you asking me if I had

30:06 conversation with him on this patent?

12:30:08 Q. No, just in general. Do you recall

12:30:10 having conversations with Dr. Seligman about the

12:30:12 removal of tar and nicotine from reconstituted

12:30:14 tobacco?

12:30:14 MR. MURPHY: Different question.

12:30:16 Which is your question?

12:30:16 MR. PAYTON: I changed the question.

12:30:22 A. Are you asking me --

12:30:24 Q. Whether you had conversations with

12:30:26 Dr. Seligman --

12:30:26 A. About --

30:30 Q. Apart from this patent, conversations

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with Dr. Seligman about the removal of tar and nicotine from reconstituted tobacco.

A. Or from the smoke generated from burning recon?

Q. That's correct.

A. Yes. I don't recall having specific conversation on an issue like that.

Q. I actually meant the original version of my question. I accepted your amendment, but that's not what I meant. I meant did you have conversations with Dr. Seligman about the removal from the material, the reconstituted tobacco material of alkaloids and tar.

MR. MURPHY: Objection to the form of the question. John, as you know, and I think the witness has explained previously, discussing tar in terms of tobacco material is not a meaningful way to talk about it. That's why the witness clarified your prior question.

So I continue to object to the form of the question.

MR. PAYTON: Let me say it another way. I see the point you're making.

Q. Did you have conversations with

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Dr. Seligman of a process that would be applied to reconstituted tobacco manufacturing that would have the result of lowering the tar and nicotine in the smoke?

MR. MURPHY: Objection to form. You may answer.

A. I don't recall having a conversation with Dr. Seligman on that subject per se.

Q. And do you now understand this patent to be describing a process that would result in the reduction of the tar and nicotine levels in the smoke associated with tobacco and reconstituted tobacco?

MR. MURPHY: Objection to the form of the question. The question is very confusing. If you understand the question, you can answer.

A. In reading through the thing, what I understand from that, from this patent, is that they developed a procedure or a way of making reconstituted tobacco that they felt that it would allow you to reduce the tar and nicotine from a cigarette, everything else held constant except changing this for tobacco or recon.

And without going through the

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numbers, I can't tell whether or not their assessment was demonstrated by the data, okay?

Q. And do you understand this process to be applicable to the BL reconstituted process?

A. If I recall correctly, there -- the concept in here is that you can pyrolize carbohydrate material and mix it into -- into reconstituted tobacco, and one of the processes or one of the applications they suggest in here, they do suggest that you could put this into the BL kind of process, mixing it with the tobacco materials.

Q. And do you also understand that it could be used in the RL process?

MR. MURPHY: Objection to form. What do you mean by "it," John?

MR. PAYTON: This process.

MR. MURPHY: Do you understand the question?

A. I think so. What it says in here, that you can heat treat carbohydrate materials, which are almost anything organic, I would think, in such a way and still be able to put that into the RL process.

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And what I didn't find in here was how they intended to do that. I don't recall seeing it. Because my impression is that this is very fine material. You would have a difficult time if you put it in the wet end of the process. It would interfere with drainage.

And I'm trying to find where they project it could be done. If I look at page 12, homogenized slurry, which is what I think that we're referring to ~~about the~~ The BL kind of material, is * thereafter processed to form the desired material. Thus the slurry may be cast directly, which is the way the BL is made, or passed through a conventional paper making machine.

I don't know how you would do that with a slurry like this, that they're talking about.

Q. You don't understand how it would work?

A. I have some difficulty understanding how you would use this kind of ground-up slurry that they're talking about and put it across the paper making machine. Not knowing exactly when this work was done, it may have been done before

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12:37:50 we even had the RL process built and operating.
12:37:52 It could have been done in '75, when we were
12:37:54 doing the work.
12:38:02 I have some difficulty understanding
12:38:04 how this could be done on a conventional paper
12:38:08 making machine. But it does state that in here.
12:38:10 And I didn't get a chance to look at the examples
12:38:14 to see if they did do anything with a
12:38:18 conventional paper making machine.
12:38:26 I just have some difficulty
12:38:30 envisioning putting that ~~form~~ KIDD of slurry across
38:32 the wire, Fourdrinier.
12:38:44 Q. Do you want to go back to page 4.
12:38:44 (Witness complies.)
12:38:50 Q. If you look at the top of page 4,
12:38:54 that paragraph, I believe, describes the problems
12:38:58 that were encountered by prior efforts to reduce
12:39:02 tar and nicotine in the paper making process,
12:39:08 including the problems with the Fourdrinier.
12:39:12 MR. MURPHY: Objection. The document
12:39:14 speaks for itself. What's the question?
12:39:16 Q. And I believe you will see in the
12:39:20 summary of the invention at the bottom of that
39:24 page an indication that the invention -- they

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say, "This method not only avoids substantially all of the above noted disadvantages associated with the prior art techniques but additionally produces a smokeable material which has reduced tar and nicotine content at least equal to that associated with activated carbon but without its inherent drawbacks."

A. Yes. I see that. What I haven't found in this thing is where -- see, the fine carbon particles interfere with the proper drainage, which is what I would expect on a Fourdrinier, and would cause you problems on the Yankee dryer. That I can understand.

I don't understand how making this slurry that's referred to later on, which when you really get to, what is it, page 10, is that the one we were looking at --

Q. 12.

A. 12, what I'm reading in here is that they have already ground this stuff to like 350 to 400 microns. Well, those particles are smaller than the opening on the wire on the Fourdrinier, normally. Somebody may have envisioned a possibility of it.

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http://legacy.library.ucsf.edu/tid/zbr07a00/pdf
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I don't know if it was reduced to practice. And I have difficulty understanding how they could have.

Q. When you were the head of the processing plants, that's 1980 to '83?

A. Yes.

Q. Was there any effort you were aware of to try to reduce the tar and nicotine content of BL?

MR. MURPHY: Objection to form.

Q. To affect BL in a way such that the tar and nicotine levels of the smoke were reduced?

MR. MURPHY: Same objection.

A. Well, specifically, I don't recall conversations with R&D on changing the BL process to result in a cigarette having reduced tar or nicotine at that time. I don't recall those kinds of discussions.

But during the period of '77 to '83, I think we were producing lower and lower delivery cigarettes during that period of time, developing new lower delivery cigarettes. I don't recall any specific effort to reduce the

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12:42:30 nicotine content in the smoke that resulted from
12:42:36 recons, either BL or RL, at the time.

12:42:38 But the very fact that you're using
12:42:44 them does result in lower nicotine, okay? I just
12:42:46 don't recall anything else specifically.

12:42:48 THE VIDEO OPERATOR: We're going off
12:42:52 the record. The time on the screen is 12:42:53.

(Luncheon recess: 12:42 p.m.)

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